

Customer No.: 31561
Application No.: 10/708,876
Docket No.: 12707-US-PA

REMARKS

Present Status of the Application

The Office Action rejected claims 1-11. Specifically, the Office Action rejected claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Maiocchi (U. S. Patent 5,397,972). Claims 1-11 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Claim Rejections under 35 USC 102

The Office Action rejected claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Maiocchi. Applicants respectively traverse the rejections for at least the reasons set forth below.

1. As previously stated, independent claims 1 and 6 (see FIG. 4) recite the features that *the zero-crossing point of BEMF is taken from the floating winding while the other two windings are in the excited state*. In this situation, the signal detection for the zero-crossing point of BEMF is specifically corresponding to the floating winding, and is not randomly from any one of the three windings, as disclosed in Maiocchi.

Further, in step 102, if the zero-crossing occurs then the subsequent phase is commutated (step 103). If the zero-crossing does not occur then the shifted subsequent phase is commutated (step 107).

2. In re Maiocchi (see Appendix about Fig. 8 of Maiocchi with added steps S100-S112), the

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“disexciting motor (S102)” is performed after the initial exciting by a time of T_0 , and then the exciting is interrupted (col. 7, lines 27-39); col. 8, lines 59-60; col. 9, lines 20-24). In addition, after passing a mask time of $T_0/8$ (S103), the zero-crossing point from *any one of the three-phase windings* is detected (col. 7, lines 21-23). This is different from the present invention.

Further in step S104, a first reading S104 is performed. At step S105, the zero-crossing is detected. If the zero-crossing point occurs (S105), then the steps S106 - S109 about second reading...are performed. If the zero-crossing point does not occur, then another phase (S112) or the same phase (S111) are excited.

Apparently, these steps of Maiocchi do not disclose at least the features of the present invention as recited in independent claims 1 and 6.

3. In other words, the present invention is further distinguishable over Maiocchi for at least the following reasons:

(a) In Maiocchi, after disexciting motor, all the windings are detected and judged whether or not the ZCP of BEMF occurs in anyone of the windings.

In the present invention, a specific winding (floating winding) is detected.

(b) In Maiocchi, when ZCP is detected in random phase by comparator reading, Maiocchi further needs a procedure “decoding of exciting phase (S107)” because the ZCP is detected in random phase.

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In the present invention, the ZCP occurs in fix phase (floating winding, which dependent on the initial phase) and the present invention needs no decoding procedure to know which phase for generating the ZCP signal and which phase to be commutated to.

4. The Office Action also refers to Abstract and col. 8, lines 7-25 as the starting of a motor.... However, this disclosure of Maiocchi is about the steps S100 - S105 (see Appendix for Fig. 8) and does not equally disclose the features of monitoring the zero-crossing point on the specific floating winding in the present invention.

For the subsequent steps of the present invention, the Office Action also refers to Fig. 3, Fig. 5, Fig. 12 (in col. 10, lines 20-58; col. 11, lines 1-11, 66-68), Fig. 12 (in col. 12, lines 1-4); col. 17, lines 29-39 and col. 18, lines 11-38. However, these descriptions are some examples based on the procedure in Fig. 8 of Maiocchi, and do not equally disclose the specific steps of the present invention.

For at least the foregoing reasons, Maiocchi does not disclose the same starting procedure as recited in independent claims 1 and 6. With at least the same reasons, dependent claims 2-5 and 7-11 more specifically define the starting procedure over Maiocchi.

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CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-11 of the invention patently define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Appendix

U.S. Patent

Mar. 14, 1995

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5,397,972

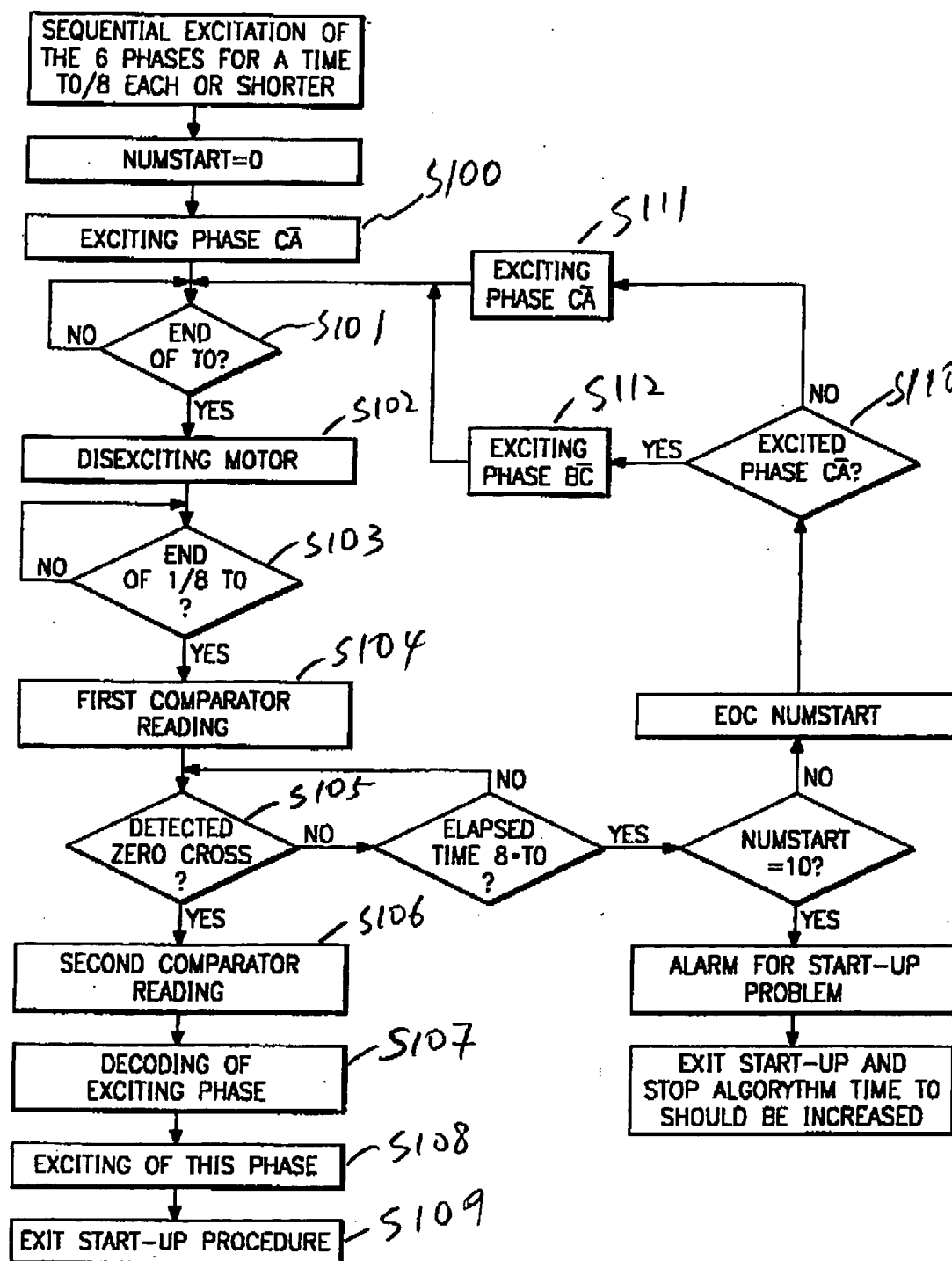


FIG. 8